

REGULATION FOR THE CONTROL OF MOTOR VEHICLE EMISSIONS IN THE NORTHERN VIRGINIA
AREA (9 VAC 5 CHAPTER 91)

9 VAC 5 CHAPTER 91.
REGULATION FOR THE CONTROL OF MOTOR VEHICLE EMISSIONS
IN THE NORTHERN VIRGINIA AREA.

PART I.
Definitions.

9 VAC 5-91-10. General.

A. For the purpose of this chapter and subsequent amendments or any orders issued by the board, the words or terms shall have the meanings given them in 9 VAC 5-91-20.

B. Unless specifically defined in the Virginia Motor Vehicle Emissions Control Law (§ 46.2-1176 et seq. of the Code of Virginia) or in this chapter, terms used shall have the meanings given them by 9 VAC 5-170-20 (definitions, Regulation for General Administration) or commonly ascribed to them by recognized authorities, in that order of priority.

9 VAC 5-91-20. Terms defined.

"Aborted test" means an emissions inspection procedure that has been initiated by the inspector but stopped and not completed due to inspector error or a vehicular problem that prevents completion of the test. Aborted tests are not tests that cannot be completed due to a "failed/invalid" result caused by an exhaust dilution problem or an engine condition that prevents the inspection from being completed.

"Access code" means the security phrase or number which allows authorized station personnel, the department, and analyzer service technicians to perform specific assigned functions using the certified analyzer system, as determined by the department. Depending on the assigned function, the access code is a personal password, a state password or a service password. Access code is not an identification number, but is used as an authenticator along with the identification number where such number is needed to perform specific tasks.

"Actual gross weight" means the gross vehicle weight rating (GVWR).

"Administrator" means the administrator of the U.S. Environmental Protection Agency (EPA) or an authorized representative.

"Affected motor vehicle" means any motor vehicle which:

1. Was manufactured or designated by the manufacturer as a model year

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less than twenty-five calendar years prior to January 1 of the present calendar year according to the formula, the current calendar year minus 24, except those identified by remote sensing as specified in subdivision 5 of this definition;

2. Is designed for the transportation of persons or property;
3. Is powered by an internal combustion engine; and
4. For the Northern Virginia Emissions Inspection Program, has an actual gross weight of 10,000 pounds or less.
5. For vehicles subject to remote sensing measurements identified in Table III B in 9 VAC 5-91-180, 1968 and newer models are included.

The term "affected motor vehicle" does not mean any:

1. Vehicle powered by a clean special fuel as defined in § 58.1-2101 of the Code of Virginia, provided the federal Clean Air Act permits such exemptions for vehicles powered by clean special fuels;
 2. Motorcycle;
 3. Vehicle which, at the time of its manufacture, was not designed to meet emissions standards set or approved by the federal government;
 4. Any antique motor vehicle as defined in § 46.2-100 of the Code of Virginia and licensed pursuant to § 46.2-730 of the Code of Virginia;
 5. Fire fighting equipment, rescue vehicle, or ambulance;
 6. Vehicle for which no testing standards have been adopted by the board;
- or
7. Tactical military vehicle.

"Air intake systems" means those systems which allow for the induction of ambient air (to include preheated air) into the engine combustion chamber for the purpose of mixing with a fuel for combustion.

"Air pollution" means the presence in the outdoor atmosphere of one or more substances which are or may be harmful or injurious to human health, welfare or safety; to animal or plant life; or to property; or which unreasonably interfere with the enjoyment by the people of life or property.

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"Air Pollution Control Law" means Chapter 13 (§ 10.1-1300 et seq.) of Title 10.1 of the Code of Virginia.

"Air system" means a system for providing supplementary air to promote further oxidation of hydrocarbons and carbon monoxide gases and to assist catalytic reaction.

"Alternative fuel" means an internal combustion engine fuel other than (i) gasoline, (ii) diesel, or (iii) fuel mixtures containing more than 15% volume of gasoline.

"Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference method, but which has been demonstrated to the satisfaction of the board, in specific cases, to produce results adequate for its determination of compliance.

"ASM" means Acceleration Simulation Mode testing which is a dynamometer-based emissions test performed in one or more, discreet, simulated road speed and engine load modes, and equipment which can be used to perform any such test.

"Authorized personnel" means department personnel, an individual designated by analyzer manufacturer, station owner, licensed emissions inspector, station manager or other person as designated by the station manager.

"Basic engine systems" means those parts or assemblies which provide for the efficient conversion of a compressed air and fuel charge into useful power to include but not limited to valve train mechanisms, cylinder head to block integrity, piston-ring-cylinder sealing integrity and post-combustion emissions control device integrity.

"Bi-fuel" means any motor vehicle capable of operating on one of two different fuels, usually gasoline and an alternative fuel, but not a mixture of the fuels. That is, only one fuel at a time.

"Board" means the State Air Pollution Control Board or its designated representative.

"Calibration" means establishing or verifying the response curve of a measurement device using several different measurements having precisely known quantities.

"Calibration gases" means gases of precisely known concentrations that are used as references for establishing or verifying the response curve of a measurement

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device.

"Canister" means a mechanical device capable of adsorbing and retaining hydrocarbon vapors.

"Catalytic converter" means a post combustion device which oxidizes hydrocarbons, carbon monoxide gases, and may also reduce oxides of nitrogen.

"Certificate of emissions inspection" means a document, device, or symbol, whether recorded in written or electronic form, as prescribed by the director and issued pursuant to this chapter, which indicates that (i) an affected motor vehicle has satisfactorily complied with the emissions standards and passed the emissions inspection provided for in this chapter; (ii) the requirement of compliance with the emissions standards has been temporarily waived; or (iii) the affected motor vehicle has failed the emissions inspection.

"Certified emissions repair facility" means a facility, or portion of a facility, that has obtained a certification in accordance with Part VII (9 VAC 5-91-500 et seq.) to perform emissions related repairs on motor vehicles.

"Certified emissions repair technician" means a person who has obtained a certification in accordance with Part VIII (9 VAC 5-91-550 et seq.) to perform emissions related repairs on motor vehicles.

"Certified enhanced analyzer system" or "analyzer system" means the complete system that samples and reads concentrations of hydrocarbon, carbon dioxide, nitric oxides and carbon monoxide gases and that is approved by the department for use in the Enhanced Emissions Inspection Program in accordance with Part X (9 VAC 5-91-640 et seq.). The system includes the exhaust gas handling system, the exhaust gas analyzer, evaporative system pressure test equipment, associated automation hardware and software, data media, the analyzer system cabinet, the dynamometer and appurtenant devices, vehicle identification equipment, and associated cooling and exhaust fans and gas cylinders.

"Certified thermometer" means a laboratory grade ambient temperature measuring device with a range of at least 20°F through 120°F, and an attested accuracy of at least 1°F with increments of 1°, with protective shielding.

"Chargeable inspection" means a completed inspection, on an affected motor vehicle, for which the station owner is entitled to collect an inspection fee. No fee shall be paid for (i) inspections for which a certificate of emissions inspection has not been issued, (ii) inspections that are conducted by the department for referee purposes, (iii) inspections which were ordered due to on-road test failures but which result in an

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emissions inspection "pass" at an inspection station, or (iv) the first reinspection done at the same station that performed the initial inspection within 14 days. An inspection ordered by the department due to an on-road test failure and which results in an emissions inspection failure at the emissions inspection station is a chargeable inspection.

"Confirmation test" means an emissions inspection required due to a determination that the vehicle exceeds the exhaust emissions standards established in Table III-B in 9 VAC 5-91-180 for on-road testing through remote sensing. The confirmation emissions inspection procedure may include tailpipe emission testing, OBD system test or both.

"Consent order" means a mutual agreement between the department and any owner, operator, emissions inspector, or emissions repair technician that such owner or other person will perform specific actions for the purpose of diminishing or abating the causes of air pollution or for the purpose of coming into compliance with this chapter. A consent order may include agreed upon civil charges. Such orders may be issued without a formal hearing.

"Curb idle" means vehicle operation whereby the transmission is disengaged and the engine is operated with the throttle in the closed or idle stop position with the resultant engine speed between 400 and 1250 revolutions per minute (rpm), or at another idle speed if so specified by the manufacturer.

"Data handling system" means all the computer hardware, software and peripheral equipment used to conduct emissions inspections and manage the enhanced emissions inspection program.

"Data medium" or "data media" means the medium contained in the certified analyzer system and used to electronically record test data.

"Day" means a 24-hour period beginning at midnight.

"Dedicated alternative fuel vehicle" means a vehicle that was configured by the vehicle manufacturer to operate only on one specific fuel other than (i) gasoline, (ii) diesel, or (iii) fuel mixtures containing more than 15% by volume of gasoline.

"Dedicated-fuel vehicle" means a vehicle that was designed and manufactured to operate and operates on one specific fuel.

"Department" means any employee or other representative of the Virginia Department of Environmental Quality, as designated by the director.

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"Director" means the director of the Virginia Department of Environmental Quality or a designated representative.

"Dual fuel" means a vehicle which operates on a combination of fuels, usually gasoline or diesel and an alternative fuel, at the same time. That is, the mixed fuels are introduced into the combustion chamber of the engine.

"Emissions control equipment" means any part, assembly or equipment originally installed by the manufacturer in or on a motor vehicle for the sole or primary purpose of reducing emissions.

"Emissions control systems" means any system consisting of parts, assemblies or equipment originally installed by the manufacturer in or on a motor vehicle for the primary purpose of reducing emissions.

"Emissions inspection" means an emissions inspection of a motor vehicle performed by an emissions inspector employed by or working at an emissions inspection station or fleet emissions inspection station, using the tests, procedures, and provisions set forth in this chapter.

"Emissions inspection station" means a facility or portion of a facility which has obtained an emissions inspection station permit from the director authorizing the facility to perform emissions inspections in accordance with the provisions of this chapter.

"Emissions inspector" means a person licensed by the department to perform inspections of vehicles required under the Virginia Motor Vehicle Emissions Control Law and is qualified in accordance with this chapter.

"Emissions standard" means any provision of Part III (9 VAC 5-91-160 et seq.) or Part XIV (9 VAC 5-91-790 et seq.) which prescribes an emission limitation, or other emission control requirements for motor vehicle air pollution.

"Empty weight (EW)" means that weight stated as the EW on a Virginia motor vehicle registration or derived from the motor vehicle title or manufacturer's certificate of origin. The EW may be used to determine emissions inspection standards.

"Enhanced emissions inspection program" means a motor vehicle emissions inspection including procedures, emissions standards, and equipment required by 40 CFR Part 51, Subpart S or equivalent and consistent with applicable requirements of the federal Clean Air Act. The director shall administer the enhanced emissions inspection program. Under the Virginia Motor Vehicle Emissions Control Law, the program requires that affected motor vehicles, unless otherwise exempted, receive biennial inspections at official emissions inspection stations, which may be test and

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repair facilities, in accordance with this chapter. Nothing in this program shall bar enhanced emissions inspection stations or facilities from also performing vehicle repairs.

"EPA" means the United States Environmental Protection Agency.

"Equivalent test weight (ETW)" or "emission test weight" means the weight of a motor vehicle as automatically determined by the emissions analyzer system based on vehicle make, model, body, style, model year, engine size, permanently installed equipment, and other manufacturer and aftermarket supplied information, and used for the purpose of assigning dynamometer resistance and exhaust emissions standards for the conduct of an exhaust emissions inspection.

"Evaporative system pressure test" or "pressure test" means a physical test of the evaporative emission control system on a motor vehicle to determine whether the evaporative system vents emissions of volatile organic compounds from the fuel tank and fuel system to an on-board emission control device, and prevents their release to the ambient air under normal vehicle operating conditions. Such testing shall only be conducted at emissions inspection stations upon installation of approved equipment and software necessary for performing the test, as determined by the director.

"Exhaust gas analyzer" means an instrument which is capable of measuring the concentrations of certain air pollutants in the exhaust gas from a motor vehicle.

"Facility" means something that is built, installed or established to serve a particular purpose; includes, but is not limited to, buildings, installations, public works, businesses, commercial and industrial plants, shops and stores, apparatus, processes, operations, structures, and equipment of all types.

"Federal Clean Air Act" means 42 USC § 7401 et seq.

"Fleet" means 20 or more motor vehicles which are owned, operated, leased or rented for use by a common owner.

"Fleet emissions inspection station" means any inspection facility operated under a permit issued to a qualified fleet owner or lessee as determined by the director.

"Flexible-fuel vehicle" means any motor vehicle capable of operating on two or more fuels, either one at a time or any mixture of two or more different fuels.

"Formal hearing" means a board or department process that provides for the right of private parties to submit factual proofs as provided in § 2.2-4020 of the Administrative Process Act in connection with case decisions. Formal hearings do not

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include the factual inquiries of an informal nature provided in § 2.2-4019 of the Administrative Process Act.

"Fuel control systems" means those mechanical, electro-mechanical, galvanic or electronic parts or assemblies which regulate the air-to-fuel ratio in an engine for the purpose of providing a combustible charge.

"Fuel filler cap pressure test" or "gas cap pressure test" means a test of the ability of the fuel filler cap to prevent the release of fuel vapors from the fuel tank under normal operating conditions.

"Gas span" means the adjustment of an exhaust gas analyzer to correspond with known concentrations of gases.

"Gas span check" means a procedure using known concentrations of gases to verify the gas span adjustment of an analyzer.

"Gross vehicle weight rating (GVWR)" means the maximum recommended combined weight of the motor vehicle and its load as prescribed by the manufacturer and is (i) expressed on a permanent identification label affixed to the motor vehicle; (ii) stated on the manufacturer's certificate of origin; or (iii) coded in the vehicle identification number. If the GVWR can be determined it shall be one element used to determine emissions inspection standards and test type. If the GVWR is unavailable, the department may make a determination based on the best available evidence including manufacturer reference, information coded in the vehicle identification number, or other available sources of information from which to make the determination.

"Heavy duty vehicle" means any affected motor vehicle (i) which is rated at more than 8,500 pounds GVWR or (ii) which has a loaded vehicle weight or GVWR of more than 6,000 pounds and has a basic frontal area in excess of 45 square feet.

"High emitter index" means the method of categorizing the probable failure-rates of engine families. Values within the index are determined by computing the percentile of the historical failure-rate of a specific engine family, i.e. a specific group of vehicles with the same vehicle type, year, make and engine size, to the historic failure-rate of all engine families in a specific model year group. Failure rates are based on the most recent full year of test data from the Virginia Motor Vehicle Emissions Control Program. Vehicles with a index value above 75 are considered "high-emitters".

"Identification number" means the number assigned by the department to uniquely identify department personnel, an emissions inspection station, a certified emissions repair facility, a licensed emissions inspector, a certified emissions repair technician or other authorized personnel as necessary for specific tasks.

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"Idle mode" means a condition where the vehicle engine is warm and running at the rate specified by the manufacturer as curb idle, where the engine is not propelling the vehicle, and where the throttle is in the closed or idle stop position.

"Ignition systems" means those parts or assemblies which are designed to cause and time the ignition of a compressed air and fuel charge.

"Implementation Plan" means the plan, including any revision thereof, which has been submitted by the Commonwealth and approved in Subpart VV of 40 CFR Part 52 by the administrator under § 110 of the federal Clean Air Act, or promulgated in Subpart VV of 40 CFR Part 52 by the administrator under § 110(c) of the federal Clean Air Act, or promulgated or approved by the administrator pursuant to regulations promulgated under § 301(d) of the federal Clean Air Act and which implements the relevant requirements of the federal Clean Air Act.

"Informal fact finding" means an informal conference or consultation proceeding used to ascertain the fact basis for case decisions as provided in § 2.2-4019 of the Administrative Process Act.

"Initial inspection" means the first complete emissions inspection of a motor vehicle conducted in accordance with the biennial inspection requirement and for which a valid vehicle emissions inspection report was issued. Any test following the initial inspection is a retest or reinspection.

"Inspection area" means the area that is occupied by the certified analyzer system and the vehicle being inspected.

"Inspection fee" means the amount of money that the emissions inspection station may collect from the motor vehicle owner for each chargeable inspection.

"Light duty truck" means any affected motor vehicle which (i) has a loaded vehicle weight or GVWR of 6,000 pounds or less and meets any one of the criteria below; or (ii) is rated at more than 6,000 pounds GVWR but less than 8,500 pounds GVWR and has a basic vehicle frontal area of 45 square feet or less; and meets one of the following criteria:

1. Designed primarily for purposes of transportation of property or is a derivation of such a vehicle.
2. Designed primarily for transportation of persons and has a capacity of more than 12 persons.

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3. Equipped with special features enabling off-street or off-highway operation and use.

"Light duty truck 1" or "LDT1" means any affected motor vehicle which meets the criteria above and is rated at 6,000 pounds GVWR or less. LDT1 is a subset of light duty trucks.

"Light duty truck 2" or "LDT2" means any affected motor vehicle which meets the criteria above and is rated at greater than 6,000 pounds GVWR. LDT2 is a subset of light duty trucks.

"Light duty vehicle" means an affected motor vehicle that is a passenger car or passenger car derivative capable of seating 12 passengers or less.

"Loaded vehicle weight (LVW)" or "curb weight" means the weight of a vehicle and its standard equipment; i.e., the empty weight as recorded on the vehicle's registration or the base shipping weight as recorded in the vehicle identification number, whichever is greater; plus the weight of any permanent attachments, the weight of a nominally filled fuel tank, plus 300 pounds.

"Locality" means a city, town, or county created by or pursuant to state law.

"Mobile fleet emissions inspection station" means a facility or entity which provides emissions inspection equipment or services to a fleet emissions inspection station on a temporary basis. Such equipment is not permanently installed at the fleet facility but is temporarily located at the fleet facility for the sole purpose of testing vehicles owned, operated, leased or rented for use by a common owner.

"Model year" means, except as may be otherwise defined in this chapter, the motor vehicle manufacturer's annual production period which includes the time period from January 1 of the calendar year prior to the stated model year to December 31 of the calendar year of the stated model year; provided that, if the manufacturer has no annual production period, the term "model year" shall mean the calendar year of manufacture. For the purpose of this definition, model year is applied to the vehicle chassis, irrespective of the year of manufacture of the vehicle engine.

"Motor vehicle" means any motor vehicle as defined in § 46.2-100 of the Code of Virginia as a motor vehicle and that:

1. Is designed for the transportation of persons or property; and
2. Is powered by an internal combustion engine.

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"Motor vehicle dealer" means a person who is licensed by the Department of Motor Vehicles in accordance with §§ 46.2-1500 and 46.2-1508 of the Code of Virginia.

"Motor vehicle inspection report" means a printed certificate of emissions inspection that is a report of the results of an emissions inspection. It indicates whether the motor vehicle has (i) passed, (ii) failed, or (iii) obtained a temporary emissions inspection waiver. It may also indicate whether the emissions inspection could not be completed due to an exhaust dilution or an engine condition which prevents the inspection from being completed. The report shall accurately identify the motor vehicle and shall include inspection results, recall information provided by the department, warranty and repair information, and a unique identification number.

"Motor vehicle owner" means any person who owns, leases, operates, or controls a motor vehicle or fleet of motor vehicles.

"Nonconforming vehicle" means a vehicle not manufactured for sale in the United States to conform to emissions standards established by the federal government.

"Normal business hours" for emissions inspection stations, means a daily eight-hour period Monday through Friday, between the hours of 8 a.m. and 6 p.m., with the exception of national holidays, state holidays, temporary closures noticed to the department and closures due to the inability to meet the requirements of this chapter. Nothing in this chapter shall prevent stations from performing inspections at other times in addition to the "normal business hours." Emissions inspection stations may, with the approval of the department, substitute a combined total of eight hours, between 8 a.m. and 6 p.m., over a weekend period for one weekday as their "normal business hours" for conducting emission inspections. Emissions inspection stations shall post inspection hours.

"Northern Virginia emissions inspection program" means the emissions inspection program required by this chapter in the Northern Virginia program area.

"Northern Virginia program area" or "program area" means the territorial area encompassed by the boundaries of the following localities: the counties of Arlington, Fairfax, Loudoun, Prince William, and Stafford; and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park.

"On-board diagnostic system" or "OBD system" means the computerized emissions control diagnostic system installed on model year 1996 and newer affected motor vehicles.

"On-board diagnostic system test" or "OBD system test" means an evaluation of the OBD system pursuant to 40 CFR 86.094-17 according to procedures specified in 40

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CFR 85.2222 and this chapter.

"On-board diagnostic vehicle" or "OBD vehicle" means a model year 1996 and newer model affected motor vehicle equipped with an on-board diagnostic system and meeting the requirements of 40 CFR 85.2231.

"On-road testing" means tests of motor vehicle emissions or emissions control devices by means of roadside pullovers or remote sensing devices.

"Operated primarily" means vehicle operation which constitutes a significant use in the program area. For the purpose of this definition, significant use shall be (i) mileage in excess of 6,000 miles per year or (ii) routine operation into or within the program area as evidenced by recordation of travel in the program area at least three times in a two-week period by remote sensing or on-road testing.

"Order" means any decision or directive of the board or the director, including orders, consent orders, and orders of all types rendered for the purpose of diminishing or abating the causes of air pollution or enforcement of this chapter. Unless specified otherwise in this chapter, orders shall only be issued after the appropriate administrative proceeding.

"Original condition" means the condition of the vehicle, parts, and components as installed by the manufacturer but not necessarily to the original level of effectiveness.

"Owner" means any person who owns, leases, operates, controls or supervises a facility or motor vehicle.

"Party" means any person who actively participates in the administrative proceeding or offers comments through the public participation process and is named in the administrative record. The term "party" also means the department.

"Person" means an individual, corporation, partnership, association, a governmental body, a municipal corporation, or any other legal entity.

"Pollutant" means any substance the presence of which in the outdoor atmosphere is or may be harmful or injurious to human health, welfare or safety, to animal or plant life, or to property, or which unreasonably interferes with the enjoyment by the people of life or property.

"Referee station" means those facilities operated or used by the department to (i) determine program effectiveness, (ii) resolve emissions inspection conflicts between motor vehicle owners and emissions inspection stations, and (iii) provide such other technical support and information, as appropriate, to emissions inspection stations and

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motor vehicle owners.

"Reference method" means any method of sampling and analyzing for an air pollutant as described in Appendix A of 40 CFR 60.

"Reinspection" "or retest" means a type of inspection selected by the department or the emissions inspector when a request for an inspection is due to a previous failure. Any inspection that occurs 120 days or less following the most recent chargeable inspection is a retest.

"Rejected" or "Rejected from testing" means that the vehicle cannot be inspected due to conditions in accordance with 9 VAC 5-91-420 C or 9 VAC 5-91-420 G 3.

"Remote sensing" means the observation, measurement, and recordation of motor vehicle exhaust emissions from motor vehicles while travelling on roadways or in specified areas by specialized equipment. Such equipment may use light sensing and electronic stimuli in conjunction with devices, including videographic and digitized images, to detect and record vehicle identification information, such as registration or other identification numbers.

"Sensitive mission vehicle" means any vehicle which, for law enforcement or national security reasons, cannot be tested in the public inspection system and must not be identified through the fleet testing system. For such vehicles, an autonomous fleet testing system may be established by agreement between the controlling agency and the director.

"Span gas" means gases of known concentration used as references to adjust or verify the accuracy of an exhaust gas analyzer that are approved by the department and are so labeled.

"Standard conditions" means a temperature of 20°C (68°F) and a pressure of 760 mm of Hg (29.92 inches of Hg).

"Standardized instruments" means laboratory instruments calibrated with precision gases traceable to the National Institute of Standards and Technology and accepted by the department as the standards to be used for comparison purposes. All candidate instruments are compared in performance to the standardized instruments.

"Tactical military vehicle" means any motor vehicle designed to military specifications or a commercially designed motor vehicle modified to military specifications to meet direct transportation support of combat, tactical, or military relief operations, or training of personnel for such operations.

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"Tampering" means to alter, remove or otherwise disable or reduce the effectiveness of emissions control equipment on a motor vehicle.

"Test" means an emissions inspection of a vehicle, or any portion thereof, performed by an emissions inspector at an emissions inspection station, using the procedures and provisions set forth in this chapter.

"Test and repair" means motor vehicle emissions inspection stations which perform emissions inspections and may also perform vehicle repairs. No provision of this chapter shall bar emissions inspection stations from also performing vehicle repairs.

"Thermostatic air cleaner" means a system that supplies temperature regulated air to the air intake system during engine operation.

"True concentration" means the concentration of the gases of interest as measured by a standardized instrument which has been calibrated with 1.0% precision gases traceable to the National Bureau of Standards.

"Two speed idle test or TSI" means a vehicle exhaust emissions test, performed in accordance with section (II) of 40 CFR Part 51, Appendix B to Subpart S, which measures the concentrations of pollutants in the exhaust gases of an engine (i) while the motor vehicle transmission is not propelling the vehicle and (ii) while the engine is operated at both curb idle and at a nominal engine speed of 2,500 rpm.

"Vehicle specific power" or "VSP" means an indicator expressed as a function of vehicle speed, acceleration, drag coefficient, tire rolling resistance and roadway grade that is used to characterize the load a vehicle is operating under at the time and place a vehicle is measured by remote sensing equipment. It is calculated using the following formula:

$$\text{VSP} = 4.39 \times \text{Sine (Site Grade in Degrees/57.3)} \times \text{Speed} + K1 \times \text{Speed} \times \text{Acceleration} + K2 \times \text{Speed} + K3 \times \text{Speed}^3$$

Where:

VSP = vehicle specific power indicator;

Sine = the trigonometric function that for an acute angle is the ratio between the side opposite the angle when it is considered part of a right triangle and the hypotenuse;

Site Grade in Degrees = slope of road where remote sensing

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measurement is taken;

K1, K2 and K3 = empirically determined coefficients specific to the weight class of the vehicle;

Speed = rate of motion in miles per hour of vehicle at the time remote sensing measurement is taken; and

Acceleration = change in speed in miles per hour per second.

For light duty vehicles the values for K1, K2 and K3 are respectively 0.22, 0.0954 and 0.0000272. Based on EPA guidance DEQ may develop different values for K1, K2 and K3 that are applicable to heavy duty vehicles or to specific classes of light duty vehicles.

"Virginia Motor Vehicle Emissions Control Program" means the program for the inspection and control of motor vehicle emissions established by Virginia Motor Vehicle Emissions Control Law.

"Virginia Motor Vehicle Emissions Control Law" means Article 22 (§ 46.2-1176 et seq.) of Chapter 10 of Title 46.2 of the Code of Virginia.

"Visible smoke" means any air pollutant, other than visible water droplets, consisting of black, gray, blue or blue-black airborne particulate matter emanating from the exhaust system or crankcase. Visible smoke does not mean steam.

"Zero gas" means a gas, usually air or nitrogen, which is used as a reference for establishing or verifying the zero point of an exhaust gas analyzer.

PART III.

Emission Standards for Motor Vehicle Air Pollution.

9 VAC 5-91-160. Exhaust emission standards for two-speed idle testing in enhanced emissions inspection programs.

A. No motor vehicle subject to the two-speed idle test shall discharge carbon monoxide (CO), or hydrocarbons (HC) in its exhaust emissions in excess of standards set forth in Table III-A when measured with a certified analyzer system and in accordance with the two-speed idle inspection procedures prescribed in Part VI (9 VAC 5-91-410 et seq.).

B. The measured concentration of CO plus CO₂ shall be greater than or equal to 6.0%.

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C. The standards in Table III-A may be adjusted by no more than one percentage point for CO and 150 ppm for HC in order to meet the requirements of the Environmental Protection Agency or the federal Clean Air Act.

TABLE III-A.
EXHAUST EMISSION STANDARDS FOR TWO-SPEED
IDLE EMISSIONS TESTS.

Model Year	HC (ppm)	CO (%)
For idle test and 2500 RPM test for vehicles up to 8500 pounds GVWR:		
1996 & later	110	0.75
1990-95	125	1.0
1981-89	220	1.2
1980	220	2.0
1975-79	400	4.0
<u>1970-74</u>	<u>600</u>	<u>6.0</u>
<u>1968-69</u>	<u>800</u>	<u>8.0</u>
For vehicles from 8501 to 10000 pounds GVWR:		
1997 & later	125	0.75
1991-1996	150	1.0
1981-1990	220	1.2
1980	220	2.0
1975-79	400	4.0
<u>1970-74</u>	<u>600</u>	<u>6.0</u>
<u>1968-69</u>	<u>800</u>	<u>8.0</u>

9 VAC 5-91-180. Exhaust emissions standards for on-road testing through remote sensing.

A. No motor vehicle shall exceed the emissions standard for carbon monoxide (CO), hydrocarbons (HC) or nitric oxide (NO), ~~whichever is selected for use, or both,~~ set forth in Table III-B when measured with a remote sensing device and in accordance with the inspection procedures prescribed in Part XII (9 VAC 5-91-740 et seq.).

B. Any motor vehicle determined to have exceeded any emissions standards in Table III-B ~~at least twice within 90 days~~ when measured by a remote sensing device in accordance with the procedures of Part XII (9 VAC 5-91-740 et seq.) may be subject to an-emissions inspection at an emissions inspection station in accordance with Part XII

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(9 VAC 5-91-740 et seq.) or a civil charge in accordance with § 46.2-1178.1 B of the
Code of Virginia, or both.

C. Beginning January 1, 2004, motor vehicles that exceed the emission standards in Table III-B twice in a 120 day period shall be considered to have violated such emissions standards. In addition, the department may use the high emitter index as an additional screening requirement.

D. Beginning January 1, 2005, or later date based on analysis of remote sensing failure rates and confirmation test results, the department may determine that a vehicle is a high emitter if such vehicle exceeds the standards in Table III-B once and is also determined to have a High Emitter Index of greater than 75.

E. All remote sensing measurements used to determine if a vehicle exceeds emissions standards in Table III-B shall be taken at valid sites under conditions at which the vehicle specific power (VSP) indicator is between 3 and 22. Standards for NO must be corrected for VSP using the following formula:

$$\text{NO standard} = \text{Low Range Standard} + (\text{VSP}-3) / 19 \times (\text{High Range Standard} - \text{Low Range Standard}).$$

Where:

Low Range Standard = the smaller values in Table III B in the NO (ppm) Range column;

VSP = vehicle specific power indicator; and

High Range Standard = the larger values in Table III B in the NO (ppm) Range column.

GE. The department may adjust the standards in Table III-B if it is determined that ~~the a~~ standard is causing a ~~false failure~~ confirmation test pass rate in excess of 20% or less than 5.0% ~~as measured by the results of emissions inspections at emissions inspection stations.~~ Such adjustments may be for specific ~~model years~~ models within each model year group based on manufacturer's emissions control technology.

TABLE III-B.
EXHAUST EMISSION STANDARDS FOR REMOTE SENSING.

Model Year	CO (%)	HC (ppm)
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1977-79, 6000 lb. and less	10.0	1600
1977-79, more than 6000 lb.	12.0	2000
1980-95, 8500 lb. and less	4.8	880
1980-95, more than 8500 lb.	6.0	880
1996-98, 6000 lb. and less	3.6	660
1996-98, more than 6000 lb.	5.0	660
1999 and newer, 6000 lb. and less	3.60	440
1999 and newer, more than 6000 lb.	5.0	440

<u>Standards Beginning January 1, 2004</u>			
<u>Period/Model Year/Vehicle Type</u>	<u>CO (%)</u>	<u>HC (ppm)</u>	<u>NO (ppm) Range¹</u> <u>Low to High</u>
<u>Pre-1981 – LDGT (1 or 2)</u>	<u>7.0%</u>	<u>1000</u>	
<u>Pre-1981 – LDGV</u>	<u>7.0%</u>	<u>1000</u>	
<u>Pre-1981 – HDGT</u>	<u>7.0%</u>	<u>1000</u>	
<u>1981 TO 1985 – LDGT (1 or 2)</u>	<u>6.0%</u>	<u>800</u>	<u>1500 – 2000</u>
<u>1981 TO 1985 – LDGV</u>	<u>6.0%</u>	<u>750</u>	<u>1200 – 1800</u>
<u>1981 TO 1985 – HDGT</u>	<u>7.0%</u>	<u>750</u>	
<u>1986 TO 1990 – LDGT (1 or 2)</u>	<u>5.5%</u>	<u>700</u>	<u>1200 – 1800</u>
<u>1986 TO 1990 – LDGV</u>	<u>5.5%</u>	<u>650</u>	<u>1000 – 1600</u>
<u>1986 TO 1990 – HDGT</u>	<u>6.5%</u>	<u>750</u>	
<u>1991 TO 1995 – LDGT (1 or 2)</u>	<u>5.0%</u>	<u>650</u>	<u>1200 – 1800</u>
<u>1991 TO 1995 – LDGV</u>	<u>5.0%</u>	<u>600</u>	<u>1000 – 1600</u>
<u>1991 TO 1995 – HDGT</u>	<u>6.0%</u>	<u>700</u>	
<u>1996 and newer LDGT (1 or 2)</u>	<u>4.0%</u>	<u>450</u>	<u>600 – 900</u>
<u>1996 and newer LDGV</u>	<u>4.0%</u>	<u>450</u>	<u>600 – 900</u>
<u>1996 and newer HDGT</u>	<u>5.0%</u>	<u>600</u>	
<u>Standards Beginning January 1, 2005 and later – Two or More On-Road Measurements</u>			
<u>Period/Model Year/Vehicle Type</u>	<u>CO (%)</u>	<u>HC (ppm)</u>	<u>NO (ppm) Range</u> <u>Low to High</u>
<u>Pre-1981 – LDGT (1 or 2)</u>	<u>7.0%</u>	<u>1000</u>	
<u>Pre-1981 – LDGV</u>	<u>7.0%</u>	<u>1000</u>	

¹ $NO\ standard = Low\ Range\ standard + (Actual\ VSP-3)/19 * (High\ Range\ standard - Low\ Range\ Standard)$

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<u>Pre-1981 – HDGT</u>	<u>7.0%</u>	<u>1000</u>	
<u>1981 TO 1985 – LDGT (1 or 2)</u>	<u>6.0%</u>	<u>800</u>	<u>1500 – 2000</u>
<u>1981 TO 1985 – LDGV</u>	<u>6.0%</u>	<u>750</u>	<u>1200 – 1800</u>
<u>1981 TO 1985 – HDGT</u>	<u>7.0%</u>	<u>750</u>	
<u>1986 TO 1990 – LDGT (1 or 2)</u>	<u>5.5%</u>	<u>700</u>	<u>1200 – 1800</u>
<u>1986 TO 1990 – LDGV</u>	<u>5.5%</u>	<u>650</u>	<u>1000 – 1600</u>
<u>1986 TO 1990 – HDGT</u>	<u>6.5%</u>	<u>750</u>	
<u>1991 TO 1995 – LDGT (1 or 2)</u>	<u>4.0%</u>	<u>550</u>	<u>1000 – 1500</u>
<u>1991 TO 1995 – LDGV</u>	<u>4.0%</u>	<u>500</u>	<u>900 – 1400</u>
<u>1991 TO 1995 – HDGT</u>	<u>6.0%</u>	<u>700</u>	
<u>1996 and newer LDGT (1 or 2)</u>	<u>3.0%</u>	<u>350</u>	<u>500 – 800</u>
<u>1996 and newer LDGV</u>	<u>3.0%</u>	<u>350</u>	<u>500 - 800</u>
<u>1996 and newer HDGT</u>	<u>5.0%</u>	<u>600</u>	
<u>Jan 1, 2005 and later – Single On-Road Measurement</u> <u>Vehicle must have High Emitter Index of 75% or Higher</u>			
<u>Period/Model Year/Vehicle Type</u>	<u>CO (%)</u>	<u>HC (ppm)</u>	<u>NO (ppm) Range</u> <u>Low to High</u>
<u>Pre-1981 – LDGT (1 or 2)</u>	<u>7.0%</u>	<u>1000</u>	
<u>Pre-1981 – LDGV</u>	<u>7.0%</u>	<u>1000</u>	
<u>Pre-1981 – HDGT</u>	<u>7.0%</u>	<u>1000</u>	
<u>1981 TO 1985 – LDGT (1 or 2)</u>	<u>6.0%</u>	<u>800</u>	<u>1500 – 2000</u>
<u>1981 TO 1985 – LDGV</u>	<u>6.0%</u>	<u>750</u>	<u>1200 – 1800</u>
<u>1981 TO 1985 – HDGT</u>	<u>7.0%</u>	<u>750</u>	
<u>1986 TO 1990 – LDGT (1 or 2)</u>	<u>5.5%</u>	<u>700</u>	<u>1200 – 1800</u>
<u>1986 TO 1990 – LDGV</u>	<u>5.5%</u>	<u>650</u>	<u>1000 – 1600</u>
<u>1986 TO 1990 – HDGT</u>	<u>6.5%</u>	<u>750</u>	
<u>1991 TO 1995 – LDGT (1 or 2)</u>	<u>4.0%</u>	<u>550</u>	<u>1000 – 1500</u>
<u>1991 TO 1995 – LDGV</u>	<u>4.0%</u>	<u>500</u>	<u>900 – 1400</u>
<u>1991 TO 1995 – HDGT</u>	<u>6.0%</u>	<u>700</u>	
<u>1996 + LDGT (1 or 2)</u>	<u>3.0%</u>	<u>350</u>	<u>500 – 800</u>
<u>1996 + LDGV</u>	<u>3.0%</u>	<u>350</u>	<u>500 – 800</u>
<u>1996 + HDGT</u>	<u>5.0%</u>	<u>600</u>	

Ø. G. Beginning January 1, 2005 for any 30-day period, up to 5.0% of the number of vehicles measured three times which have been detected as having the cleanest measurements, based on an average of three measurements using on-road testing equipment within the period, may, at the discretion of the director, be recorded as having passed an emissions inspection and such result shall be entered into the emissions inspection record for that vehicle.

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~~E. Remote sensing measurements used for such purposes shall be from at least two different on-road testing locations.~~

~~F. Remote sensing measurements obtained while a vehicle is decelerating shall not be used for the purpose described in this section.~~

PART XII.
On-Road Testing.

9 VAC 5-91-740. General requirements.

A. The on-road testing program shall conform, at a minimum, to the requirements of 40 CFR 51.371 and § 46.2-1178.1 of the Code of Virginia applicable to the program area in which it is employed.

B. The emissions standards for the on-road remote sensing program are those contained in Table III-B in 9 VAC 5-91-180.

C. The on-road testing program and the emissions standards applicable thereto shall apply to affected motor vehicles registered in the program area and any affected motor vehicles operated in the program area.

9 VAC 5-91-750. Operating procedures; violation of standards.

A. Remote sensing equipment shall be operated in accordance with the remote sensing equipment manufacturers operating instructions and any contract or agreement between the department and the equipment operator.

B. Motor vehicles determined by remote sensing equipment to have exceeded the applicable emissions standards in Table III-B in 9 VAC 5-91-180 ~~twice within 90 days~~ shall be considered to have violated such emissions standards.

1. Owners of such motor vehicles shall be issued a notice of violation and shall be subject to the civil charges in 9 VAC 5-91-760 unless waived pursuant to this section.

2. Upon a determination by the department that a violation has occurred, motorists shall be informed by the department or its representative of the failure to comply with emissions standards and of the dates, times, and places such remote sensing measurement occurred.

C. Civil charges assessed pursuant to this part shall be waived if, within ~~90~~ 30

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days of the date of the notice of the violation, the motor vehicle owner provides proof to the department that ~~since the date of the violation, (i) the vehicle has passed a vehicle emissions inspection, (ii) the vehicle has received an emissions inspection waiver, or (iii) the vehicle has qualified for waiver within the 12 months prior to the violation.;~~

1. Since the date of the violation the vehicle has passed, or received a waiver as the result of, a confirmation test, or

2. Within the 12 months prior to the violation the vehicle had received an emissions inspection waiver.

D. The requirement for an emissions inspection or payment of civil charges, based on a remote sensing failure, may be waived by the department if the affected motor vehicle in question is, by virtue of its registration date, required to have an emissions inspection within ~~90 days~~ three months of the date of the notice of violation remote sensing measurement that indicates the vehicle has exceeded the applicable standards in Table III B in 9 VAC 5-91-180.

E. For 1996 and newer model vehicles with OBD , the director may require the vehicle pass an exhaust test (ASM or two-speed idle) in addition to the OBD system test.

9 VAC 5-91-760. Schedule of civil charges.

A. No charge shall exceed ~~an adjusted maximum charge of \$450 adjusted annually by using 1990 as the base year and applying the consumer price index the current waiver cost amount in effect on the date of the notice of violation in accordance with 9 VAC 5-91-420 O.~~

B. For violations measured in accordance with 9 VAC 5-91-750 B to be up to 120% of the applicable standard, the charge shall ~~not exceed 20% of the adjusted maximum charge in subsection A of this section~~ be \$100.00.

C. For violations measured in accordance with 9 VAC 5-91-750 B to be more than 120% but not exceeding 140% of the applicable standard, the charge shall ~~not exceed 40% of the adjusted maximum charge in subsection A of this section~~ be \$200.00.

D. For violations measured in accordance with 9 VAC 5-91-750 B to be more than 140% but not exceeding 160% of the applicable standard, the charge shall ~~not exceed 60% of the adjusted maximum charge in subsection A of this section~~ be \$300.00.

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E. For violations measured in accordance with 9 VAC 5-91-750 B to be more than 160% but not exceeding 180% of the applicable standard, the charge shall ~~not exceed 80% of the adjusted maximum charge in subsection A of this section~~ be \$400.00.

F. For violations measured in accordance with 9 VAC 5-91-750 B to be over 180% ~~but not exceeding 200%~~ of the applicable standard, the charge shall ~~not exceed the adjusted maximum charge in subsection A of this section~~ be \$500.00.

G. For violations measured in accordance with 9 VAC 5-91-750 B to be over 200% of the applicable standard, the charge shall be the maximum charge in subsection A of this section.

H. Civil charges assessed pursuant to this part shall be paid into the state treasury according to § 46.2-1178.1 of the Code of Virginia.

H1. For the purpose of applying a civil charge as prescribed in this section, the degree of violation shall be determined by averaging the highest emissions readings from each remote sensing measurement in which exceed at least one of the applicable standard standards was exceeded.